NAME OF THE COURSE	Laboratory Course in General Chemistry II					
Code	PMC004	Year of study	1st undergraduate study			
Course teacher	Dr Renata Odžak, Associate Professor	Credits (ECTS)	3.0			
Associate teachers		Type of instruction (number of hours)	L	S	E	F
					45	
Status of the course	obligatory	Percentage of application of e-learning	20%			

COURSE DESCRIPTION

Course objectives	The students will adopt the basics of lab work, learn the basic techniques and methods of experimental work in chemistry, master the correct execution of the given chemical experiments according to the instructions in the literature, overcome the proper observation of the experiment, record the observations and make conclusions at the end of practical work.
Course enrolment requirements and entry competences required for the course	No conditions.
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	After completing the course, the students will be able to: 1. Apply laboratory pots and accessories when conducting measurement and performing experiments. 2. Apply the necessary precautionary measures when conducting the experiment 3. Apply basic knowledge and analyze the legality of chemical kinetics, chemical equilibrium, acids and bases, complex compounds and perform experiments involving neutralization reactions, titration. 4. Distinguish basic chemical processes eg hydration, solvation, neutralization, buffer solutions. 5. Apply a chemical count to indicate the composition of the solution, diluting the solution. 6. Perform electrochemical experiments, including galvanic and electrolysis.
Course content broken down in detail by weekly class schedule (syllabus)	Exercises Complex compounds (dissociation of complex compounds, ligand influence and oxidation state of central metal ion on complex ion color, ligand replacement) (3 hours) 2. and 3. Solutions (preparation of the solution of the composition and acid dilution, determination of water solubility, temperature solubility, determination of molar enthalpy of salt dissolution, determination of boiling water with pure solvent and saturated aqueous solution, preparation of colloidal solvents and Tyndall's phenomenon) (6 hours) 4. Dissociation of homogeneous mixtures based on the pressure differential (distillation of the galley aqueous solution at atmospheric pressure, reduced pressure, fractional distillation of the zeotropic and azeotropic mixture) (3 hours) 5. and 6. Chemical reaction kinetics (influence of concentration and temperature on chemical reaction rate, determination of reaction rate and activation energy level, catalyst reaction effect, autocatalysis, 7. Chemical equilibrium equilibrium (influence of temperature on equilibrium gas reaction, concentration influence and temperature on equilibrium in solution, influence of common ion on solubility of hard soluble salts, application of Henry's law and ligand influence on equilibrium reaction) (3 hours) 8. 9. and 10. Acids and bases (obtaining and proving hydrochloric acid and ammonia solution, pH determination, salt hydrolysis, preparation and buffer capacity, pH buffer influence, acid concentration determination by titration method, determination of mass fraction acetic acid in vinegar titration method) (9 hours) 11 and 12. Electrochemistry (relative strength of oxidants and reductions, reaction metal with hydrochloric acid, conductivity measurement of electrolytic solution, preparation and measurement of electromotive force of Daniell's cell, electromotive force dependence of galvanic cell on electrolyte concentration, use of fruit for

	making galvanic cell, electrolysis of water solution of various salts and proving electrolysis products, determination of molar mass of metal by Faraday's Electrolyze Law) (9 hours) 13 and 14 Replacement of certain exercises (6 hours)

Format of instruction	☐ lectures ☐ seminars and workshops ☒ exercises ☐ *on line* in entirety ☐ partial e-learning ☐ field work	☐ independent assignments ☐ multimedia ☐ laboratory ☐ work with mentor ☐ (other)
Student responsibilities		

Screening student work *(name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*						
	Class attendance	0.5	Research		Practical training	
	Experimental work	0.5	Report		(Other)	
	Essay		Seminar essay		(Other)	
	Tests	0.5	Oral exam		(Other)	
	Written exam	1.5	Project		(Other)	

Grading and evaluating student work in class and at the final exam	Obligatory entrance exam before performing laboratory exercises, self-sufficiency when performing the same, monitoring and processing of results through each exercise in the form of a referral and written or oral exams.

Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	R. Odžak, “Laboratory Exercises in General Chemistry”, University of Split, 2019.		available

Optional literature (at the time of submission of study programme proposal)	M Sikirica, B.Korpar-Čolig, Praktikum iz opće kemije, Školska knjiga, Zagreb, 2001. W. Haynes, ed. CRC Handbook of Chemistry and physics, 91st edition (Internet version), CRC Press/Taylor & Francis, Boca Raton, FL, 2011.
Quality assurance methods that ensure the acquisition of exit competences	For lab exercises the quality of a lab diary (reports), anonymous student surveys, and consultations with students.
Other (as the proposer wishes to add)	